Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Amendment of the Commission's Rules to Promote Aviation Safety	)	WT Docket No. 19-140
	)	
	)	
WiMAX Forum Petition to Adopt Service Rules for the Aeronautical Mobile Airport Communications System (AeroMACS)	)	RM-11793
	)	
	)	
Petition of Sierra Nevada Corporation for Amendment of the Commission's Rules to Allow for Enhanced Flight Vision System Radar under Part 87	)	RM-11799
	)	
	)	
Petition of Aviation Spectrum Resources, Inc. for Amendment of Sections 87.173(b) and 87.263(a) of the FCC's Rules to Allow Use of the Lower 136 MHz Band by Aeronautical Enroute Stations	)	RM-11818
	)	
	)	
Petition of Airports Council International-North America Regarding Aeronautical Utility Mobile Stations	)	RM-11832
	)	

COMMENTS OF AIRXOS INC.

AiRXOS Inc. ("AiRXOS") is part of GE Aviation and respectfully submits the following comments in response to the Notice of Proposed Rulemaking ("NPRM" or "Notice") released by the Federal Communications Commission ("FCC" or "Commission") on June 7, 2019.[1] The NPRM seeks comment on proposals to update the Commission's Part 87 rules governing aviation services.[2] While the proposed updates to Part 87 do not explicitly address unmanned aircraft systems ("UAS"), AiRXOS believes that the Commission should use this rulemaking

[1] *See Amendment of the Commission's Rules to Promote Aviation Safety, et al.*, WT Docket No. 19-140, RM-11793, RM-11799, RM-11818, and RM-11832, Notice of Proposed Rulemaking, FCC 19-53 (rel. June 7, 2019) ("NPRM").

[2] *See* 47 C.F.R. §§ 87.1 *et seq.*

and future revisions to Part 87 as an opportunity to address critical issues for the burgeoning UAS industry in the U.S.

Indeed, AiRXOS recognizes the significant role the Commission plays in integrating UAS into our National Airspace System ("NAS") for the benefit of the American public. Congress has recognized this as well, including (in the FAA Reauthorization Act of 2018) when it required the Commission, Federal Aviation Administration ("FAA"), and National Telecommunications and Information Administration ("NTIA") to draft a thorough UAS spectrum report by July 2, 2019.[3] This report has the potential to provide the UAS industry with much needed guidance, and AiRXOS looks forward to seeing the final report.

Given the UAS industry's growth and the lack of clear FCC rules under which the industry may operate, AiRXOS believes the Commission should: (1) adopt an interim regulatory regime that permits near-term commercial operations for UAS systems, which cannot rely on the Commission's current regulatory mechanisms to secure FAA approval; (2) clarify that the Part 87 definition of Enhanced Flight Vision Systems ("EFVS") includes, for UAS, on-aircraft controls and on-ground displays; and (3) not restrict non-aircraft licenses for Aeronautical Mobile Airport Communications System ("AeroMACS") operations to only airport owners and operators. Adopting rules that incorporate these three proposals will facilitate innovation in the aviation services industry generally and, by extension, ensure that the U.S. UAS industry continues to grow.

[3] FAA Reauthorization Act of 2018, Pub. L. 115-254, § 374 (2018) (requiring submission of a report to relevant Congressional subcommittees "[n]ot later than 270 days after the enactment of this Act").

I. ABOUT AIRXOS INC.

AiRXOS is part of GE Aviation, the world's largest aircraft engine manufacturer. Recognizing the unlimited potential and broad societal benefits of UAS, AiRXOS believes it is critical to establish a regulatory framework that will allow the UAS industry to scale safely, efficiently, and sustainably. AiRXOS has extensive aviation product and certification experience and is dedicated to accelerating the safe and efficient growth of UAS in the NAS.

AiRXOS helps government agencies, regional aviation authorities, and private sector operators manage and meet the increasing demand for sophisticated, safe UAS operations. AiRXOS has partnered with many stakeholders interested in advancing UAS operations, including: (1) industry partners and associations, such as the Commercial Drone Alliance; (2) government departments and agencies, including the FCC, FAA, Department of Defense, National Aeronautics and Space Administration ("NASA"), and Department of Transportation ("DOT"), as well as state and local agencies; and (3) international bodies, such as the United Nations International Civil Aviation Organization ("ICAO").

AiRXOS actively participates in cross-industry programs that advance safe and efficient UAS industry requirements, standards, and protocols. These programs include NASA's TCL3 and TCL4 flight tests, as well as the FAA's UAS Integration Pilot Program ("UAS IPP").[4] AiRXOS also is participating in the FAA's UAS Traffic Management ("UTM") Pilot Program and is an approved Low Altitude Notification and Authorization Capability ("LAANC") service

[4] The UAS IPP brings state, local, and tribal governments together with private sector entities to accelerate safe drone integration. The UAS IPP currently supports the Choctaw Nation of Oklahoma, the City of San Diego, and the Memphis-Shelby County Airport Authority, among others. The program also is helping DOT and the FAA craft new rules that support complex low-altitude operations. *See* Federal Aviation Administration, *UAS Integration Pilot Program*, https://www.faa.gov/uas/programs_partnerships/integration_pilot_program/ (Nov. 7, 2018).

provider. Along with the FAA, AiRXOS recently launched the ASTM International working group to establish the equipment requirements for ground surveillance in support of UTM.

II. AN INTERIM REGULATORY REGIME THAT PERMITS UAS TO CONDUCT NEAR-TERM COMMERCIAL OPERATIONS WILL ENCOURAGE INNOVATIVE USES FOR UAS WHILE STAKEHOLDERS ESTABLISH A LONG-TERM SOLUTION

While the NPRM does not directly seek comment on how its proposed rules might affect the UAS industry, it provides the Commission with an opportunity to lay the groundwork for investment in (and the continued development of) UAS. AiRXOS believes that the Commission will need to initiate a rulemaking to address UAS-specific issues (*e.g.*, dedicated interference-protected frequencies that satisfy critical UAS command and control ("C2") needs and the remote identification ("RID") needs for Urban Air Mobility ("UAM")). In the short-term, however, the Commission should quickly and efficiently establish an interim regulatory regime that allows the UAS industry to conduct near-term commercial operations while industry and government collaborate to establish a long-term regulatory framework.

The Commission grants STAs in a limited number of circumstances, including for temporary testing and for market trials, for short periods of time.[5] Currently, the FAA will not grant operating authority via FAA Part 107 waivers for advanced small UAS ("sUAS") systems licensed under the FCC's Experimental Radio Service.[6] To facilitate investment and growth in the UAS industry while industry and government stakeholders collaborate on a long-term regulatory framework, the Commission should establish an interim regulatory regime that allows

[5] *See* 47 C.F.R. §§ 1.931(b)(2) (describing special temporary authorizations for private wireless services), 5.61 (describing special temporary authorizations for market trials).

[6] *See, e.g.*, U.S. Department of Transportation, Federal Aviation Administration, Certificate of Waiver No. 107W-2019-04403, at 7 (Aug. 15, 2019) (stating in Provision Number 33 that an "FCC experimental authorization may not be used for sUAS operations under this waiver"); *see also* 47 C.F.R. §§ 5.1 *et seq.* (providing the Commission's rules for the Experimental Radio Service).

UAS businesses to conduct commercial operations for a multiyear period under FCC licenses that the FAA will accept, such as an expedited waiver approval process for UAS operations. The Commission's regulatory regime should include particular safety requirements that adequately reduce the risk of accidents (*e.g.*, EIRP limits, dedicated or responsibly shared frequencies, etc.), thereby satisfying other agencies' concerns regarding safety. This interim regulatory regime would serve as an important stopgap measure until industry and government successfully implement a long-term, comprehensive regulatory solution for UAS.

III. THE COMMISSION SHOULD CLARIFY THAT THE DEFINITION OF EFVS INCLUDES ON-AIRCRAFT CONTROLS AND ON-GROUND DISPLAYS SO AS NOT TO LIMIT FUTURE AVIATION USE

The Commission seeks comment on its proposed definition for EFVS,[7] which would match the FAA's definition.[8] While consistent use of definitions across agencies is typically desired, that is not the case here. The FAA's definition of EFVS in Section 1.1 of the FAA's rules is obsolete,[9] as it was promulgated before Congress's mandate to integrate UAS into the NAS. The FAA's definition and, by extension, the Commission's proposed definition should: (1) clarify that EFVS may include on-ground displays (*i.e.*, where UAS operators are located); and (2) incorporate UAS' ability to use EFVS radar frequencies to detect and avoid dangerous obstacles and terrain. The Commission therefore should clarify that, for UAS, the definition of EFVS includes displays *not* installed on an aircraft and includes on-aircraft controls. This simple clarification would minimize stakeholder confusion, help future-proof the definition to account for rapid developments in UAS technology and policy, improve flight safety, and reduce

[7] *See* NPRM ¶ 13.

[8] *See id.* n. 24 ("We propose to adopt the FAA definition [of EFVS]."); *see also* 14 C.F.R. § 1.1 (providing the FAA definition).

[9] *See* 14 C.F.R. § 1.1.

administrative burdens on the Commission, which will not have to respond to a Petition for Declaratory Ruling or otherwise respond to stakeholders' inquiries as the UAS industry continues to grow.

IV. AEROMACS CAN SUPPORT OPERATIONS AWAY FROM AIRPORTS, SO LICENSING ELIGIBILITY SHOULD NOT BE LIMITED TO AIRPORT OWNERS AND OPERATORS

AeroMACS "enable[s] communications for surface operations at airports between aircraft and other vehicles, as well as between critical fixed assets."[10] The Commission notes that "AeroMACS will be used by fixed, base, and mobile units . . . *near* airport property,"[11] highlighting the fact that AeroMACS has the ability to support off-airport operations. As use of UAS grows, AeroMACS may serve as a cost-effective solution for off-airport operations in dense population centers, including cities. The Commission therefore should not limit license eligibility for non-aircraft AeroMACS licenses to airport owners and operators.[12] Such limits could stunt the growth of potential AeroMACS applications, such as UAS airspace authorizations. As the Commission suggests, the FAA is well-positioned to determine whether certain entities would benefit from using AeroMACS and therefore should be eligible for an AeroMACS license.[13]

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[10] NPRM ¶ 34.

[11] *Id.* ¶ 37 (emphasis added).

[12] *See id.*¶ 38 (proposing to "limit eligibility for non-aircraft AeroMACS licenses to airport owners and operators, and entities that have been granted permission by the airport owner or operator to transmit using AeroMACS equipment at or near the airport").

[13] *See id.* (seeking comment on "whether the eligibility of entities other than airport owners and operators should be determined by the FAA during the application coordination process discussed below").

V. CONCLUSION

The NPRM seeks comment on proposals that would update the Commission's Part 87 rules governing aviation services. This rulemaking provides the Commission with an excellent opportunity to address important issues faced by UAS manufacturers and operators. The UAS industry is growing quickly, and UAS' reliance on spectrum inevitably will require the Commission to promulgate rules that ensure their safe operation without foreclosing continued development of this burgeoning industry. The FCC can take a meaningful first step towards addressing this issue by revising its rules as described above. Such changes would lay important groundwork for continuing innovation and growth in the aviation industry.

Respectfully submitted,

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